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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/834,762	04/16/2001	Thomas Jaçob	MERCK-2228	4287

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EXAMINER	
WU, SHEAN CHIU	
ART UNIT	**PAPER NUMBER**
1756	

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/834,762	JACOB ET AL.
	Examiner	Art Unit
	Shean C Wu	1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-20 and 22-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1,2,4-20,22 and 23* is/are allowed.

6)☒ Claim(s) *24-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/834,762.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/23/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 25-26, 28 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claims 25-26 and 31, the claim language "the steepness of the electro-optical characteristic line" is not defined in Claim 24. Also, the threshold voltage (V_{10}) is not defined in Claim 24.

In Claim 28, the range of layer thickness (7-80 nm) is broader than Claim 24 (4-60 nm).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 24, 27-30 and 33-34 are rejected under 35 U.S.C. 102(b)/(a) as being anticipated by Auman et al. (US 5,520,845 or US 6,139,926).

The references disclose that a liquid crystal display device consists of a liquid crystal layer with opposite sides, a set of electrodes on either side of the liquid crystal

layer and an alignment layer between each set of electrodes and the liquid crystal layer. The electrodes bearing the alignment layer are supported by substrates typically of glass or plastic. Alignment of the liquid crystal molecules occurs at a certain angle, referred to as the surface tilt angle or simply as the tilt angle, with respect to the plane of the inside of two substrates, which support the electrodes. Displays using the TN or the STN effect use electrodes on opposite sides of the liquid crystal layer in order to achieve the predominantly vertical electrical field required for the switching of the liquid crystals in these display modes. The Super-twisted nematic (STN) LCDs require higher tilt angles, typically between 4 to 30 degrees and particularly between 5 to 15 degrees with alignment layer having thickness between 10 to 200 nm (see col. 3, lines 1-24, col. 9, lines 50-53 of US '926 and col. 3, lines 30-39 and col. 4, lines 28-39 of US '845). The liquid crystal mixtures (shown from col. 17, line 64 to col. 18, line 26) have the claimed liquid crystal properties. The reference anticipates the claimed invention.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 24-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baur et al. (US 5,188,758) in view of Auman et al. (US 5,520,845 or US 6,139,926).

The reference discloses an electrooptical display element which can be multiplexed, has two support plates which, with an edging, form a cell containing a nematic liquid crystal material with positive dielectric anisotropy, and has a small surface tilt angle (not more than 10^0) and a twist angle with a value between 150^0 and 250^0, wherein the ratio of the elastic constants for bending and twisting K_3/K_2 of the liquid crystal material and the twist angle are such that when using liquid crystal material with the ratio of the elastic constants K_3/K_1 for mending and spreading, which is in the order of the maximum possible, the steepness of the characteristic line is approved by the characteristic line is bi-stable or when using liquid crystal material with the ratio of the elastic constants K_3/K_1 for bending and spreading either small enough or of the smallest order possible, the steepness of the characteristic line is improved but the characteristic line remains stable. The invention furthermore relates to a corresponding supertwist cell (see col. 2, lines 6-54).

The reference further discloses a liquid crystal mixture with suitable combination of material parameters (see Examples 6 and 12-14). The results of Figures 8-10 anticipate the parameters, such as surface tilt angle, twist angle and sharpness of transmission (see col. 13 and col. 14). The reference differs from the claims in that the claims have a thickness of 3 nm to 150 nm of alignment layer. Although the reference does not specifically disclose the thickness of alignment layer, however, the present thickness of alignment layer is well known and used in STN (supertwist nematic) device (Auman et al. US 5,520,845 or US 6,139,926). Therefore, it would have been obvious to those skilled in the art to utilize the reference teaching to arrive at the claimed invention.

Allowable Subject Matter

6. Claims 1-2, 4-20 and 22-23 are allowed.

Response to Arguments

7. With respect to Claim 24-34, applicant's arguments filed 12/23/2003 have been fully considered but they are not persuasive. Because the present claim 24 is combined the original Claim 1 and Claim 2, not the newly amended Claim 1 on 12/23/03, therefore the previous rejections are still maintained. Also, see the new 112 rejection applied in present Section 1.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shean C Wu whose telephone number is 571-272-1393. The examiner can normally be reached on Monday-Friday 9:30 -6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shean C Wu
Primary Examiner
Art Unit 1756

scw